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The EFSA-funded collection of dietary and related data in the general population aged 10-74 years in Greece

Hellenic Health Foundation

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Abstract

The Hellenic Health Foundation received support from the European Food Safety Authority in order to organise a national nutrition survey according to the methodology described in the EFSA Guidance document and to collect food consumption and related information among 780 adolescents, adults and elderly residing permanently in Greece. The EFSA-funded data collection was largely based on the protocol of a large scale Greek national nutrition and health survey, called HYDRIA. The present report describes this EFSA-funded data collection in terms of: study population, tools used to record the dietary data, supplementary questionnaires to collect diet-related information as well as personal characteristics of the study participants, anthropometric measurements, details of the study implementation and measures taken to assure data quality.

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Key words: Greece, nutrition, diet, food consumption, HYDRIA, adolescents, adults

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Summary

The Hellenic Health Foundation (HHF) received support from the European Food Safety Authority (EFSA) in order to organise a national nutrition survey according to the methodology described in the EFSA Guidance document and to collect food consumption and related information among 780 adolescents, adults and elderly residing permanently in Greece. The EFSA-funded data collection was largely based on the protocol of a large scale Greek national nutrition and health survey, called HYDRIA.

Eligible individuals were males and females, aged 18 to 74 years old and adolescents (10-17 years old), who reside permanently in the country. The sample of the EFSA-funded data collection was randomly selected among the eligible individuals of the HYDRIA study population, a nationally representative population selected after the application of a two-stage sampling procedure carried out by the Hellenic Statistical Authority (ELSTAT). The final sample of the EFSA-funded data collection includes 276 adolescents (134 males and 142 females); 261 adults up to 64 years old (130 males and 131 females); and, 261 elderly 65-74 years of age (130 males and 131 females). The response rate for the data collection among adults was 26% and among adolescents was 45%.

Legal and ethical aspects were respected in accordance to national legislation and international rules. Each participant's entry to the survey was signalled by signing an informed consent form. The dietary intake was assessed through 24-hour dietary recalls (24-HDR) and the administration of a food propensity questionnaire (FPQ) which is a short, non-quantitative food frequency questionnaire. The FPQ used in the Greek data collection included questions on 88 food groups/items and 14 food supplements. The 24-HDR data were collected through the HHF Nutrition Tool, an automated, interviewer-administered application developed by the HHF. Two dietary recalls were collected per participant. The first face-to-face interviewer-administered 24-HDR took place on the day of the first examination. The second 24-HDR was telephone-administered. It was an unannounced interview taking place between 15 and 30 days after the first data collection.

Next to dietary intake, questions on gender, date and country of birth, nationality, educational attainment, employment and current occupation, composition of the household and physical activity were also administered. Each participant's somatometric characteristics were measured during the first visit at the study centre. Body weight was measured through bioelectric impedance body composition analysis scales and height through portable stadiometers.

Data collection was undertaken at the premises of local health centres of the public health system, which provide primary health services to the population of their region. When access to health centres was difficult or impossible, other local sites with the potential to operate as examination centres (town halls, peripheral doctors' offices, teaching premises (schools, colleges, libraries and gymnastic halls), open care community centres for the elderly (KAPI), community clinics), as well as mobile health care units were used. Appointments were scheduled on any day (Monday to Sunday) of the week and any time of the day (morning, afternoon or evening appointments), taking into account seasonal variation through collecting data in different time periods.

Questionnaires were electronic and accessible online. During the interview, the data collected were automatically saved at regular intervals (every 60 seconds). All fieldwork staff had experience in data collection through their involvement in the larger scale HYDRIA survey. However, before the EFSA-funded data collection was initiated, interviewers were evaluated for their comparability and repeatability and subsequently followed training sessions streamlined to reduce discrepancies identified. Training and related material were available to all team members through a specific survey extranet site, so that all members had up-to date information available throughout the fieldwork period.

Quality assurance was necessary throughout the course of the study, particularly in respect to the proper application of procedures during data collection and referred to: the calibration of the measuring equipment and data control, the transportation of equipment and data, the data collection and the administration of questionnaires.

Management procedures covered areas such as the sharing of responsibilities among fieldwork teams, preparation and organisation of examination centres, scheduling of participants' appointments, the implementation of standardised procedures, and data transfer, documentation and storage.

The Operational Management Team, in collaboration with the Information Technology Team, was responsible for the provision of the necessary data management equipment to the fieldwork teams (computers, network access, etc.) and coordinated data management procedures.

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1. Introduction and objectives

1.1. Background and terms of references as provided by the requestor

A long term objective of EFSA is the acquisition of a harmonised pan-European Food Consumption database within the framework of the EU Menu process "What's on the Menu in Europe?" (EU Menu).

In October 2009, the EFSA Expert Group on Food Consumption Data (EGFCD) endorsed the Guidance of EFSA on "General principles for the collection of national food consumption data in the view of a pan-European dietary survey" (EFSA, 2009). The main objective of this Guidance was to recommend general principles for the collection of dietary information that can be used to estimate dietary exposure to food borne hazards and nutrients considered by EFSA's Scientific Panels and Units.

In December 2009, EFSA started the Article 36 project (CFP/EFSA/DATEX/2009/02) "Pilot study for the Assessment of Nutrient intake and Food Consumption Among Kids in Europe" (PANCAKE), coordinated by RIVM (The Netherlands), to develop and test tools and procedures for the collection of individual food consumption data for infants, toddlers and other children up to 10 years of age. The final report of this project was published on the EFSA website in September 2012 (Ocke et al, 2012).

In December 2011, EFSA started the Article 36 project (CFP/EFSA/DATEX/2010/02) "Pilot study in the view of a Pan-European dietary survey – Adolescents, adults and elderly" (PANEU), coordinated by the Hungarian Food Safety Office to develop and test similar tools and protocols for the different adult population groups. The final results are described in the final report of this project published on the EFSA website in November 2013 (Ambrus et al, 2013).

The Guidance of EFSA on "General principles for the collection of national food consumption data in the view of a pan-European dietary survey" was scheduled to be updated in 2014 based on the outcomes of the above-mentioned pilot studies¹.

Further, since December 2010, EFSA collaborates with the International Agency for Research on Cancer (IARC) through a negotiated procedure contract (NP/EFSA/DATEX/2010/01) in order to develop and adapt the EPIC-SOFT dietary software according to the needs of EFSA and to ensure that this software can be used by EU Member States for their dietary surveys within the context of the EU Menu process. The final report of this project called EMP-PANEU was published on the EFSA website in June 2013 (IARC, 2013)

The first and second support to national dietary surveys was provided by means of the calls for tender CFT/DCM/2011/02 and CFT/DCM/2012/01. Support for seven surveys from six Member States (Estonia, France, Latvia, Portugal, Spain, The Netherlands) was granted in 2011 and 2012.

The aim of this procurement procedure is to award direct contracts to organizations from EU Member States, which have a governmental mandate to carry out a dietary survey at national level in the period from 2013 to 2018. Resources will be made available to support the adaptation of the methodology used in these surveys according to the EFSA Guidance document on the general principles for the collection of national food consumption data in the view of a pan-European dietary survey⁴. The dietary data collected through the activity should be available for EFSA's scientific activities without restrictions on its use.

The objectives of the contract resulting from the present procurement procedure are as follows:

¹ The guidance of EFSA has been updated in December 2014 and is available as Guidance on the EU Menu Methodology at <http://www.efsa.europa.eu/en/efsajournal/pub/3944>

- objective 1: to adapt the methodology to be used in the national food consumption survey according to the EFSA Guidance document on the general principles for the collection of national food consumption data in the view of a pan-European dietary survey,
- objective 2: to prepare and transfer to EFSA the national food consumption data and related information collected during the survey according to the format required by EFSA.

This contract/grant was awarded by EFSA to the Hellenic Health Foundation (HHF).

Contractor: Hellenic Health Foundation, Athens, Greece

Contract title: Support to National dietary surveys in compliance with the EFSA Guidance on General Principles for the collection of national food consumption data in the view of a pan-European dietary survey covering adults and adolescents from 10 up to 74 years old

Contract number: OC/EFSA/DCM/2013/02-LOT2-CT03

2. Description of the protocol of the survey

In 2010-2012, the HHF and the School of Medicine of the National and Kapodistrian University of Athens (NKUA) participated in two pilot studies: (a) the pilot of the European Health Examination Survey (the pilot EHES Joint Action), coordinated by the National Institute of Health and Welfare in Helsinki, Finland and (b) the EFSA Article 36 project (CFP/EFSA/DCM/2010/02) "Pilot study in the view of a Pan-European dietary survey – adolescents, adults and elderly" (PANEU). The participation in these two projects set the basis for the development of the protocol of a large scale Greek national nutrition and health survey HYDRIA (Martimianaki et al., 2018).

The EFSA-funded data collection among adolescents, adults and elderly up to 74 years of age was largely based on the HYDRIA protocol. The present report describes the procedures followed as well as deviations from the original plan when deemed necessary.

2.1. Study population and exclusion criteria

The study population of the EFSA-funded data collection included males and females, aged 18 to 74 years old and adolescents (10-17 years old), who were members of the HYDRIA participating households.

The sampling frame was provided by the Hellenic Statistical Authority (ELSTAT, www.statistics.gr) and covered individuals living in private households. In particular, for the purposes of this survey, ELSTAT provided HHF with a distribution of an "anonymised" sample of individuals, from which people living in collective households and institutions, as well as households with members on diplomatic missions were excluded. Furthermore, it is of significance to note that in accordance to the European Statistical Legislation, statistical authorities are not permitted to provide third parties with personal data for research purposes.

2.2. Sampling frame

Regarding adults, the sampling frame [for the EFSA-funded data collection included](#) the list of eligible individuals, participants of the larger scale nationally representative HYDRIA survey.

For EFSA-funded data collection individuals over 74 years were excluded (~12%); from the remaining individuals, 87% belonged in the 18-64 and 13% in the 65-74 age groups.

The sampling frame for adolescents aged 10-17 years old referred to the list of HYDRIA participants, who provided information on the composition of the household (number, gender and age of household members), in which they resided (response provided by 93% of participants). The list of households that included members aged below 18 composed the

sampling frame, which was then used to randomly select and contact the potential adolescent participants.

2.3. Sampling method and design

The process for the selection of the [nationally representative HYDRIA sample](#) was carried out by ELSTAT and is described below:

Greece is officially partitioned into 13 distinct geographical districts (prefectures) and therefore, all 13 districts were sampled. A two-stage sampling method was applied. The sampling frame for stage 1 was the list of municipalities in each geographical district (Primary Sampling Units (PSUs)) taking also into account the urbanisation level. Information on which district each PSU belongs and on the PSU's population size (individuals) broken down to age and sex groups was available. In stage 1, PSUs were selected through proportional probability sampling and the number of eligible individuals per age and sex group was recorded in each selected PSU. The stage 2 sampling frame was the list of individuals from which a sample could be drawn. From all the PSUs selected in Stage 1, individuals meeting the criteria of the survey were then randomly selected.

As previously stated, however, due to the applied European Statistical Law, ELSTAT did not provide to HHF the personal information of all the randomly selected individuals. Instead, a frequency distribution across areas (municipal or local communities), sex (males, females) and age groups (18-24, 25-34, 35-44, 45-54, 55-64, 65-74, and 75+ years old) was provided. The procedure used to convert the "anonymised" distribution provided by ELSTAT into a sample of individuals (with personal information for further contact) who permanently live in Greece, HHF randomly approached individuals in each selected PSU through access to a list of randomly generated phone numbers. The process led to a sample of 4000 individuals, the study population for the larger scale HYDRIA survey. The sample of the EFSA-funded data collection was randomly selected among these individuals and therefore, the same subjects were approached two times.

2.4. Sample size

In accordance to the EFSA guidance document, the sample should consist of 260 individuals (130 males and 130 females) belonging to each of the following three age classes: adolescents (from 10 up to and including 17 years of age); adults (from 18 up to and including 64 years of age); and elderly (from 65 up to and including 74 years of age). Table 1 provides the sample distribution by gender and the three core age groups. Tables 2 and 3 provide the distribution of the EFSA-funded survey sample as compared to the distribution of the HYDRIA sample and the country's population by four main regions defined by the Hellenic Statistical Authority (ELSTAT) (Table 2) and age groups (Table 3).

Table 1: Distribution (N) of the survey sample by gender and core age-groups (EFSA-funded data collection in Greece)

Age group (years)	Males		Females		Total	
	With 1 day data	With 2 days data	With 1 day data	With 2 days data	With 1 day data	With 2 days data
Adolescents (10-17)	2	132		142	2	274
Adults (18-64)	1	129		131	1	260
Elderly (65-74)	3	127	1	130	4	257
Total	6	388	1	403	7	791

Table 2: Distribution (%) of the EFSA survey sample by region as compared to the HYDRIA survey and the country's population. Adults aged 18-74 years

Regions ^(a)	Total		
	EFSA survey	HYDRIA survey	Greece
Attica	38	35	37
Northern Greece	26	30	28
Central Greece	25	24	25
Aegean islands, Crete	11	11	10

(a): According to ELSTAT (www.statistics.gr), Northern Greece includes Macedonia, Thrace and Epirus; Central Greece includes Central and Western Greece (Sterea), Thessaly, Peloponnese and Ionian Islands; Aegean islands, Crete include the islands of North and South Aegean Sea and Crete

Table 3: Distribution (%) of the EFSA survey participants aged 18-64 years by age groups as compared to the HYDRIA survey and the country's population

Age (years)	Total		
	EFSA survey	HYDRIA	Greece
18-24	11	11	11
25-34	25	20	21
35-44	22	24	25
45-54	22	24	23
55-64	20	21	20

2.5. Strategy to achieve an adequate response rate and the initial sampling size

Based on the HHF's previous experience as coordinator of the larger scale study, oversampling was considered necessary in order to accommodate the possibility of non-response. On the basis of response rates observed in our two pilot studies, a non-response rate of approximately 30% was considered within each age-group separately. Hence, 370 adolescents and adults up to 64 years of age were sampled in each age-group so as to fulfill EFSA's requirements for sample size. Given that 260 elderly individuals aged 65-74 years had to be included in the EFSA-funded data collection, all HYDRIA participants in this age-group were invited to participate.

As previously stated (Sections 2.2 and 2.3), the sample of the EFSA-funded data collection was randomly selected among individuals aged 18-74 years who had participated in the HYDRIA survey. The response rate of that survey was 52%. Based on this rate, a sample of approximately 1,200 individuals was invited to participate (oversampling to achieve the required sample of 520 individuals aged 18-74). The response rate of the EFSA-funded data collection among adults 18-74 years was 50%. Overall and considering the sampling frame used in the EFSA-funded survey, the response rate is estimated to be 26% (52% x 50%). With respect to the data collection among adolescents, the sampling frame used was the households of HYDRIA participants which included adolescents. A total of 630 adolescents were invited to participate. Given the final sample size (276 individuals) the response rate of data collection among adolescents was 45%.

2.6. Legal and ethical aspects

Any type of research on humans must be conducted according to ethical standards, which are defined by legislation, safeguarding the participant's privacy and health (physical or mental), as well as acquiring his/her informed consent. Although performing a Health Examination Survey (HES) does not pose any serious risk to health, the safeguarding of privacy and acquiring informed consent are crucial ethical aspects.

2.6.1. Legislation and guidelines

All national HESs must be conducted according to ethical standards, which for all human research, are regulated by national and international guidelines and legislation. The Declaration of Helsinki, "Ethical Principles for Medical Research Involving Human Subjects" (WMA, 2008) is considered the pillar of ethical standards.

Other important reference documents include:

- the Belmont Report ("Ethical Principles and Guidelines for the Protection of Human Subjects of Research", NIH 1979);
- an act of the Council of Europe: the Recommendation of the Committee of Ministers No R.(90) 3 concerning medical research on human beings (Committee of Ministers 1990)
- the Oviedo Convention on Human Rights and Biomedicine. (Oviedo 1997).

In Europe, the protection of personal information is governed through the Directive 95/46/EC of the European Parliament and the EU Council (1995) on the protection of individuals with regard to the processing and free movement of personal data. The respective national legislation in Greece, incorporating the European Directive, is covered by Law 2472/1997. This law provides the legal framework for the Hellenic Data Protection Authority (HDPa) (<http://www.dpa.gr>) and its mission to protect personal data and the privacy of individuals in Greece. The HHF complies with HDPa's requirements and has received their approval to collect, store and analyse data, records and files from studies conducted by HHF.

2.6.2. Data confidentiality – Data protection

Performing a HES includes collecting individual level data which are also sensitive personal data (i.e. sensitive data regarding health status). For this reason, the study protocol complied with the given country's Data Protection Act and covered all aspects of data protection, in particular: data access and exchange, record linkage, and anonymisation procedures.

2.6.3. Informed consent

Each participant's entry to the survey was signalled by signing an informed consent form. It was a process of communication between a potential participant and the HHF fieldwork staff, aiming to ensure that the individual fully understood the scope of the study, the methods adopted and how the data are going to be used. During the study visit, issues related to the survey's aim and procedures were discussed and clarifications were provided. If the individual agreed to participate, acceptance and compliance to the survey procedures was assured through signing and initialling the consent form. Each participant was fully informed about his/her rights and was able to consent fully or partly to the study objectives. In accordance to national legislation, parents' consent for the participation of children aged 10-17 years old was sought.

3. Dietary survey tools

The dietary intake was assessed through two 24-hour dietary recalls (24-HDR) per participant. The 24-HDR method aims to capture the foods and amounts actually consumed by an individual on specific days; it differs from food frequency questionnaires, which are based on an

individual's perception of usual intake over a less precisely defined period of time. If a suitable number of recalls are collected over a long period, the 24-HDR method may also be used to estimate usual intake. Since, however, the collection of a large number of measures is impractical and often not feasible, several statistical procedures have been developed and tested for estimating usual intakes and their distributions, based on short-term measurements. Their purpose is to approximate the distribution of usual intakes by shrinking the distribution obtained from short-term measurements after removing the effect of day-to-day variation. Their application requires at least two non-consecutive 24-HDRs, controlling for seasonal and day-of-week variations, in order to estimate the within-person variance. This method is, however, limited in the case of zero intakes that often reflect occasional consumption. To overcome this limitation, the use of supplementary data on frequency of consumption collected from a food propensity questionnaire (FPQ) is recommended. The FPQ aims to assess the probability of consumption separately from the reported amount consumed and subsequently combine the two estimates to describe the distribution of usual intake.

3.1. Food propensity questionnaire (FPQ)

The FPQ is a short, non-quantitative food frequency questionnaire, which records the frequency of intake but not the amounts consumed. The FPQ used in the Greek data collection (Appendix A) included questions on 88 food groups/items and 14 food supplements. The food list covered the population's whole diet and included items important for risk assessment (e.g. molluscs), for nutrition monitoring (e.g. fresh fatty fish) or addressing country-specific public health priorities (e.g. consumption of wild green leafy vegetables). The food items/groups included in the Greek FPQ corresponded to the EFSA FoodEx2 classification (Level 1 and 2) (EFSA, 2015). The Greek FPQ was developed and pilot-tested in the context of the PANEU project. An enriched version containing more food items was developed for the purposes [of the HYDRIA study](#).

Regarding their frequency of intake, respondents were asked to select among seven alternatives: (a) never (b) less than one day per month (c) one to three days per month (d) one day per week (e) two to three days per week (f) four to five days per week (g) six to seven days per week (nearly every day). Respondents were also offered the possibility to not answer. In the section on the consumption of food supplements, respondents could select their reply from a pre-defined list of active ingredients or add the description of the food supplement(s) consumed.

Similarly to all the questionnaires of the Greek data collection, the FPQ was available online and was interviewer-administered. Interviewers were trained to assist respondents in: (a) understanding the food items included in questions on aggregated categories and (b) averaging their yearly frequency of consumption. In particular, interviewers were trained to assist respondents in estimating their usual (average) yearly intakes and detailed instructions were provided at the beginning of the questionnaire. In addition, fields to indicate consumption in different time periods were available in the case of vegetables and fruit. Based on the participant's reply, the interviewer could add up to three different consumption periods and indicated the frequency of intake in each one of them.

3.2. Dietary recall

In the Greek data collection, the 24-HDR data were collected through the HHF Nutrition Tool, an automated, interviewer-administered application developed by the HHF. The HHF Nutrition Tool collects and codes dietary intake data making use of the US Department of Agriculture Automated Multiple Pass Method (Conway et al, 2003). In particular the HHF Nutrition Tool guides the respondent through a 24-hour reference period of food intake more than once, providing different opportunities for the respondent to recall and describe food details and additional occasions of food and beverage intakes. The HHF Nutrition Tool's food list, facets and descriptors have been developed by the HHF team to accommodate both the LanguaL™ Food

Description Thesaurus (<http://www.lanqual.org/>) and EFSA's FoodEx2 classification system (EFSA, 2015). In the HHF Nutrition Tool food is described by a set of standard, controlled terms chosen from facet characteristics of the food, for instance the biological origin, the methods of cooking and conservation, and technological treatments. The HHF team further developed the tool's recipe list and corresponding probes.

Two dietary recalls were collected per participant. The first face-to-face interviewer administered 24-HDR, took place on the day of the first examination. The second 24-HDR was telephone-administered. It was an unannounced interview taking place between 15 and 30 days after the first data collection.

3.2.1. Food description

The food classification scheme and the list of facets and related descriptors that the HHF Nutrition Tool employed had been amended to conform to the FoodEx2 principles of exposure hierarchy and related core and extended lists.

Table 4 describes the food classification scheme used in the HHF Nutrition Tool. A total of 1782 food items included in the HHF Nutrition Tool food list were grouped according to this scheme. The food list included simple items (e.g. milk), which were further specified in the course of the interview with the use of relevant facets and descriptors (e.g. cow milk, low fat content).

Table 5 provides the list of facets included in the HHF Nutrition Tool, together with the number of descriptors available in each facet.

Table 6 presents the list of facets connected to each food group (food group-based). In the case of groups marked in bold, additional food-specific rules for activating facets were inserted, meaning that the activated facets differ among certain items in each group. Lastly, the rules for activating descriptors within a facet were in several cases food-item based (i.e. some descriptors of the facet "origin" are activated when the consumption of egg is reported).

Table 4: The HHF Nutrition Tool Food Classification Scheme

Food groups	Sub-groups
Potatoes and other tubers	Potatoes, sweet potatoes, other tubers, potato products
Vegetables	Leafy, fruiting, root, grain and pod vegetables, brassicas, mushrooms, onion and garlic, stalk and sprouts, fresh and dried herbs, mixed vegetables, olives, sea weeds
Legumes	All types
Nuts, seeds and spreads	Salted and unsalted nuts, salted and unsalted seeds, nut spreads and other nut products
Fruit	fresh Fruit, processed fruit
Dairy products	Milk (liquid or processed), milk beverages, yoghurt, all types of cheese and cheese spreads, milk-based desserts, dairy products
Cereals and cereal products	Flour (including starch, semolina), pasta, rice, other grains, breads, crisp-bread and rusks, breakfast cereals and bars, salty biscuits (aperitif biscuits, crackers), dough
Meat and meat products	Red meat (beef, veal, pork, mutton/lamb, goat, rabbit), poultry (chicken, hen, turkey, duck, goose), other meat products including game, processed meat, offal
Fish and shellfish	Fish, crustaceans and molluscs, processed fish and fish products, amphibians
Eggs	All types of eggs
Fats and oils	Vegetable oils, butter, margarines, cooking fats, deep-frying fats, fish oils, other animal fats
Sugar, confectionery and products	Sugar, artificial sweeteners, honey, jam, marmalade, chocolate and chocolate confectioneries, non-chocolate

	confectioneries, syrups and similar, all types of ice cream and sorbet, sweet biscuits (chocolate and non-chocolate biscuits)
Non-alcoholic beverages	Fruit and vegetable juices/mixed juices, carbonated/soft/isotonic drinks, coffee/tea/herbal teas/coffee substitutes/cocoa, waters
Alcoholic beverages	Wines, other alcoholic beverages, beers and cider, spirits, liqueurs, mix alcoholic beverages (cocktails), carbonated alcoholic beverages
Sauces	Salted ready-to-eat sauces (ketchup, mayonnaise, mustard, salad dressings, dessert sauces)
Miscellaneous	Soups (powder), soya products, dietetic products, spices, broth, snacks (potato crisps and similar), baby foods
Additives, flavours, baking and processing aids	Flavourings, colouring agents, cooking aids (thickeners, raising agents)

Table 5: Facets and corresponding number of descriptors in the HHF Nutrition Tool

Facets	Number of descriptors
1. Origin	28
2. Physical state (in the quantification process)	29
3. Cooking method	44
4. Preservation method	18
5. Medium surrounding the food item (e.g. oil, wine)	31
6. Added characteristic ingredient	135
7. Sweetening agent	14
8. Fat content	6
10. Place of food preparation/acquisition	9
11. Fortification	9
12. Brand name	3 (including a list of brand names in the Greek market)
13. Skin included	3
14. Consumption of visible fat	4
15. Fats and oils used in the preparation method	36
16. Milk or other ingredient used in the preparation method	27
18. Packaging material	14
19. Cultivation/breeding method (e.g. organic product)	10
20. Products of Specific Indication (e.g. Geographical Indication- PGI)	3 (including an open field to write down the region of food production)
21. Salt content	4
22. Heating method	15
23. Extent of cooking	14
24. Added flavour	119

Table 6: Food groups and connected facets in the HHF Nutrition Tool^(a)

Food groups	Connected facets
1. Potatoes and other tubers	Physical state (in the quantification process); Cooking method; Preservation method; Medium surrounding the food item (e.g. oil, wine); Added characteristic ingredient; Place of food preparation/acquisition; Brand name; Skin included; Fats and oils used in the preparation method; Milk or other ingredient used in the preparation method; Packaging material; Cultivation/breeding method (e.g. organic product); Products of Specific Indication (e.g. Geographical Indication- PGI); Heating method.
2. Vegetables	Physical state (in the quantification process); Cooking method; Preservation method; Medium surrounding the food item (e.g. oil, wine); Added characteristic ingredient; Place of food preparation/acquisition; Brand name; Skin included; Fats and oils used in the preparation method; Milk or other ingredient used in the preparation method; Packaging material; Cultivation/breeding method (e.g. organic product); Products of Specific Indication (e.g. Geographical Indication- PGI); Heating method; Extent of cooking.
3. Legumes	Physical state (in the quantification process); Cooking method; Preservation method; Medium surrounding the food item (e.g. oil, wine); Place of food preparation/acquisition; Brand name; Fats and oils used in the preparation method; Milk or other ingredient used in the preparation method; Packaging material; Cultivation/breeding method (e.g. organic product); Products of Specific Indication (e.g. Geographical Indication- PGI); Extent of cooking.
4. Nuts, seeds and spreads	Physical state (in the quantification process); Cooking method; Preservation method; Added characteristic ingredient; Sweetening agent; Place of food preparation/acquisition; Brand name; Skin included; Milk or other ingredient used in the preparation method; Packaging material; Cultivation/breeding method (e.g. organic product); Products of Specific Indication (e.g. Geographical Indication- PGI); Salt content.
5. Fruit	Physical state (in the quantification process); Cooking method; Preservation method; Sweetening agent; Place of food preparation/acquisition; Brand name; Skin included; Packaging material; Cultivation/breeding method (e.g. organic product); Products of Specific Indication (e.g. Geographical Indication- PGI).
6. Dairy products	Origin; Physical state (in the quantification process); Cooking method; Preservation method; Medium surrounding the food item (e.g. oil, wine); Added characteristic ingredient; Sweetening agent; Fat content; Place of food preparation/acquisition; Fortification; Brand name; Milk or other ingredient used in the preparation method; Packaging material; Cultivation/breeding method (e.g. organic product); Products of Specific Indication (e.g. Geographical Indication- PGI); Salt content; Added flavour.
7. Cereals and cereal products	Cooking method; Preservation method; Added characteristic ingredient; Sweetening agent; Place of food preparation/acquisition; Fortification; Brand name; Packaging material; Cultivation/breeding method (e.g. organic product); Products of Specific Indication (e.g. Geographical Indication- PGI); Salt content; Heating method; Extent of cooking; Added flavour.
8. Meat and meat products	Origin; Physical state (in the quantification process); Cooking method; Preservation method; Medium surrounding the food item (e.g. oil, wine); Added characteristic ingredient; Fat content; Place of food preparation/acquisition; Brand name; Skin included; Consumption of visible fat; Packaging material; Cultivation/breeding method (e.g. organic product); Products of Specific Indication (e.g. Geographical Indication- PGI); Salt content; Heating method; Extent of cooking; Added flavour.

Food groups	Connected facets
9. Fish and shellfish	Physical state (in the quantification process); Cooking method; Preservation method; Medium surrounding the food item (e.g. oil, wine); Added characteristic ingredient; Place of food preparation/acquisition; Brand name; Skin included; Consumption of visible fat; Fats and oils used in the preparation method; Packaging material; Cultivation/breeding method (e.g. organic product); Products of Specific Indication (e.g. Geographical Indication- PGI); Heating method; Extent of cooking
10. Eggs and egg products	Origin; Physical state (in the quantification process); Cooking method; Place of food preparation/acquisition; Fortification; Brand name; Packaging material; Cultivation/breeding method (e.g. organic product); Products of Specific Indication (e.g. Geographical Indication- PGI); Extent of cooking.
11. Fats and oils	Origin; Added characteristic ingredient; Fat content; Place of food preparation/acquisition; Fortification; Brand name; Packaging material; Cultivation/breeding method (e.g. organic product); Products of Specific Indication (e.g. Geographical Indication- PGI); Salt content.
12. Sugar, confectionery and products	Physical state (in the quantification process); Preservation method; Medium surrounding the food item (e.g. oil, wine); Added characteristic ingredient; Sweetening agent; Fat content; Place of food preparation/acquisition; Brand name; Milk or other ingredient used in the preparation method; Packaging material; Cultivation/breeding method (e.g. organic product); Products of Specific Indication (e.g. Geographical Indication- PGI); Added flavour.
13. Non-alcoholic beverages	Physical state (in the quantification process); Cooking method (applied only for water); Added characteristic ingredient; Sweetening agent; Place of food preparation/acquisition; Fortification; Brand name; Packaging material; Cultivation/breeding method (e.g. organic product); Products of Specific Indication (e.g. Geographical Indication- PGI); Added flavour.
14. Alcoholic beverages	Added characteristic ingredient; Place of food preparation/acquisition; Brand name; Packaging material; Cultivation/breeding method (e.g. organic product); Products of Specific Indication (e.g. Geographical Indication- PGI); Added flavour.
15. Sauces	Physical state (in the quantification process); Added characteristic ingredient; Sweetening agent; Fat content; Place of food preparation/acquisition; Brand name; Fats and oils used in the preparation method; Milk or other ingredient used in the preparation method; Packaging material; Cultivation/breeding method (e.g. organic product); Added flavour.
16. Miscellaneous	Physical state (in the quantification process); Cooking method; Preservation method; Medium surrounding the food item (e.g. oil, wine); Added characteristic ingredient; Sweetening agent; Fat content; Place of food preparation/acquisition; Fortification; Brand name; Fats and oils used in the preparation method; Milk or other ingredient used in the preparation method; Packaging material; Cultivation/breeding method (e.g. organic product); Salt content; Heating method; Extent of cooking; Added flavour
17. Additives, flavours, baking and processing aids	Physical state (in the quantification process); Place of food preparation/acquisition; Brand name; Packaging material; Cultivation/breeding method (e.g. organic product)

(a): Groups in bold denote the application of additional food-item based rules for activating facets, meaning that the activated facets differ among certain items in each group

Determination of portion sizes

The quantity consumed was recorded through portion-size measurement aids (standard units, household measures and pictures), which were associated with probes integrated in the tool. In particular, portion probes included weights and/or volumes of household units, standard

portions and 190 picture series of simple foods, national and international recipes, together with photographs of usual tableware. The food pictures were organised in a digital library, which was inserted in the tool. The picture series have been validated in a sample of 103 individuals, including adolescents, adults and elderly. The results of the validation study have been presented to the IUNS 20th International Conference of Nutrition (Granada, September 2013) and have been published (Naska et al., 2016).

On the day of the first examination, participants were given printed copies of the picture series with the indication to keep it for a future occasion. During the second 24-HDR interview, interviewers asked the participant to have the copy available. If the copy was lost or misplaced, interviewers were trained to collect information on portion sizes using household units or alternative measurement aids (e.g. a piece of cheese corresponding to a small box of safety matches). When both recalls were collected, participants were asked to return the printed copy of food pictures to the study centre.

3.2.2. Dietary software

The HHF Nutrition Tool is a web-based application supporting Mozilla Firefox v22, IE v10 and Google Chrome v27 and operating as an advanced computer assisted personal interview (CAPI) system. The tool has been developed at the Hellenic Health Foundation using open-source code and is maintained internally. The software is protected against code injection, SQL injection and cross site scripting. The HHF Nutrition Tool includes the following databases:

- Standard portion sizes
- Standard recipes
- Yield factors
- Brand names
- Edible portion coefficients
- Density coefficients (Greek foods and recipes)
- Standard (natural) units
- Household measures units

The food list of the HHF Nutrition Tool includes 1665 items. Benefiting from the experience accumulated in the HYDRIA project, the tool has been updated to include additional food items and standard recipes, which had frequently been reported by the HYDRIA participants.

When a participant reports a recipe, which is not already included in the database, the tool provides the possibility of inserting this directly into the specifications of this particular interview. When this "new" recipe is regularly reported also by other participants, the tool's support team includes it in the next upgrade of the supporting databases.

When a food item, which is not available in the pre-specified food list is reported, the tool allows note keeping by the interviewers. The notes relate to the description of the type of food item and its related facets, given the nature of the food and the group it belongs (e.g. vegetable, meat etc). When the interview is concluded, comments and notes kept are reviewed by senior nutritionists. Food items that do not correspond to existing items in the list are used to enrich the tool's food list. Extensive updates are undertaken at the beginning and the end of a data collection. Updates of smaller magnitude (e.g. inclusion of a new food item in the list) can be performed in shorter intervals, if the necessity rises.

The HHF Nutrition Tool interview began with some questions on characteristics of the reported day that could alter usual eating choices (e.g. travelling or attending a celebration), as well as on participant's information relevant to dietary intake (e.g. being on a diet for health reasons). The respondent was subsequently asked to indicate the foods and beverages consumed on the reported day (crude list). After this list was completed, the tool presented a series of probe

questions which the respondent had to answer about each reported item. Twenty-two probe questions had been foreseen with the aim to collect detailed descriptions of the items consumed in terms of (some indicative examples): origin, content of fat, sugar and salt, characteristic ingredient, additives used, packaging material, fortification, cooking method, re-heating method, brand name. With respect to recipes, the respondent was firstly asked to report the origin of the dish (commercial, ready-to-cook, homemade). When a complex dish or a recipe was reported, the interviewer could either register the ingredients (when the respondent knew the recipe) or review with the respondent the ingredients of a standard recipe. All recipes and complex dishes were disaggregated into their ingredients through standard Greek or international recipes.

The interview was concluded with questions on the intake of food supplements as well as a set of probing questions about water consumption and forgotten items or eating occasions. All data were entered and coded automatically. The system included the above indicated supportive databases and pre-defined rules that converted the reported to final consumed quantities. The system further allowed real-time quality controls informing the interviewer about suspicious entries. Through the use of remote desktop technology, the data were stored in the central database in real-time.

3.3. Other information

Information on ethnicity or socio-economic status was also desirable according to the EFSA Guidance document, since these two variables might be useful to identify consumption patterns. The minimal socio-demographic information needed included age, gender, region, rural/urban area, household's size, household income and education level.

Since the quality of the information on the household income is sometimes questionable, data on the participant's occupation and economic activity was collected instead.

3.3.1. Questionnaires

Socio demographic information

Next to questions on gender and date of birth, the non-dietary questionnaire included questions on other demographic and socio-demographic characteristics, namely: country of birth, nationality, educational attainment, employment and current occupation, composition of the household.

Physical activity

In the adolescent group, physical activity was assessed through the short version of the International Physical activity Questionnaire (short IPAQ). The questionnaire has been validated for individuals aged over 15 years (Papathanassiou et al, 2010).

The validated physical activity questionnaire (Wareham et al, 2003) that has been used in the Greek arm of the European Prospective Investigation into Cancer and nutrition (the EPIC study) was also used for the adult participants.

3.3.2. Measurement of body weight and height

Each participant's somatometric characteristics were measured during the first visit at the study centre. Body weight was measured through bioelectric impedance body composition analysis scales to the nearest 0.1g and height through portable stadiometers in centimetres to the nearest 0.1 cm.

All participants' weight and height were measured, except if a person:

- was bedridden or in a wheelchair;
- had difficulty in maintaining an upright and upstanding position;

- had a particular hairstyle or wore headgear (e.g. a turban);
- was taller than the maximum measuring range of the stadiometer (205 cm)
- weighed more than the maximum weight capacity of the scales (200Kg).

All exclusion reasons were recorded on the 'Somatometric Characteristics Form', an online form where the interviewer noted any deviation from the protocol and the participants' measurements.

The portable stadiometer and the scales were set up at the examination site in accordance with the manufacturer's instructions and placed on a hard, stable floor surface. The vertical and horizontal placement was checked using a bubble spirit level. If necessary, the stadiometer was secured to the floor or the wall to ensure stability.

Participants were asked to remove shoes, heavy outer clothing and hair accessories and to step on to the base plate of the stadiometer maintaining a natural, neutral position, with their legs together, their body weight evenly distributed on both feet and their arms hanging loosely next to their body. Participants were also asked to look straight ahead. The head was positioned so that an imaginary line, drawn from the external opening of the ear (external auditory canal) to the lower part of the cheekbone, was parallel to the floor (Frankfurt Plane). Participants were asked to take a deep breath and remain motionless while maintaining an upright posture. The movable section of the stadiometer was lowered to touch the head, pressing the hair and the height was recorded in centimetres.

Before the measurement of body weight, the electrodes on the scales were cleaned with special antiseptic. Participants were asked to remove their clothing; leaving on underwear. If this was not possible, they were asked to remove shoes, any heavy clothing (e.g. jacket, sweater or belt), heavy jewellery and to empty their pockets. Participants were asked to climb onto the scale in bare feet and remain still, having their weight equally distributed between both feet.

The scales were inspected on a daily basis to verify of their horizontal positioning, test their "zero" reading and be checked for deviations using testing weights. If the deviation was greater than 0.2 kilograms, the scale was repaired or replaced. The calibration of the scales was carried out by the manufacturer at regular intervals. The stadiometer was also checked regularly. If problems occurred during testing, the stadiometer was replaced and the testing details were recorded.

3.3.3. Food supplements

Similarly to information on food intake, information on the consumption of food supplements was collected in three separate occasions. Through the first 24-HDR interview, each participant was asked to report the intake of food supplements on the recorded day. In particular, the participant was asked to report the product's brand name and/or active ingredient, the form and the weight of the supplement the frequency, the dosage and the time of the day of each consumption occasion. The respondent was subsequently asked to indicate the average yearly intake of food supplements through the corresponding section of the FPQ. Lastly, data on the supplement intake on a particular (the reported) day were collected through the second, telephone-administered 24-HDR interview.

4. Administration of the interview

4.1. Selecting the examination site

The EFSA-funded data collection was undertaken at the premises of local health centres of the public health system, which provide primary health services to the population of their region. Centres were selected on the basis of proximity to participants' residences. In Greece, particularly in rural and semi-urban areas, health centres form an integral part of local communities, whose residents are generally familiar with visiting the centre in their region.

When access to health centres was difficult or impossible, other local sites with the potential to operate as examination centres were used. For instance, public premises (town halls, peripheral doctors' offices), teaching premises (schools, colleges, libraries and gymnastic halls), open care community centres for the elderly (KAPI), community clinics and/or mobile health care units were used. In cases where participation was hindered by severe mobility impairment, home visits were scheduled.

4.2. Content and organization of the study visits

4.2.1. First contact

Scheduling appointments with participants through telephone

Appointments were scheduled on any day (Monday to Sunday) of the week and any time of the day (morning, afternoon or evening appointments), taking into account seasonal variation through collecting data in different time periods.

Appointments were scheduled by the coordinating centre; an automated system was used that allowed scheduling at different sites simultaneously. Moreover, the system allowed tracking the record of each participant's appointment (booked, postponed or cancelled).

Instructions to participants

Through the first contact in order to set the date and venue of the first interview, participants were provided with the following information:

- Contact Information: Basic information participants needed to know, such as the name and telephone number of the contact person in order to be able to change their appointments if something arose or to request further details about the study;
- Confirmation of identity: Participants were advised to have with them a document confirming their identity;
- Presence of family members, other important persons and interpreters: the participants were informed that if it was deemed necessary presence of relatives or other individuals was acceptable e.g. in cases where there were communication limitations, such as difficulties in understanding the language, speech or hearing impairment or limited cognitive ability. According to national legislation, parents had to be present when an adolescent participant was interviewed;
- Information on home visits: in case the participant was unable to visit the health centre, the options of a home visit was offered and procedures to follow were clearly described;
- Guidance on clothing/footwear: People were advised to have light clothing and shoes that could be easily removed for somatometry.

Signed informed consent for participation

At the examination site, the signed informed consent to participate was obtained through a process of direct communication between fieldwork staff and the participant, which included providing the required information and clarifications. Consent was required to have been obtained prior to any examination or the taking of any measurement. Participants had the opportunity to ask questions at any time during their visit to the examination centre, and were informed about where they could seek to resolve any queries, even after the completion of the procedures. All participants were provided with a copy of their signed informed consent form.

4.2.2. First interview

The first interview took place at the examination site and included:

- Administration of the FPQ and the 24-hour dietary recall
- Somatometric measurements
- Administration of the non-dietary data questionnaire

Attention was given to obtain self-reported weight and height, before the somatometric measurements. In cases when there were communication problems, questions could have been asked to the person escorting the participants. Nevertheless, subjective data were never asked to a participant's proxy.

4.2.3. Second interview

Study participants were contacted for their second interview 15 to 30 days after the first data collection. The second interview included a computer assisted telephone-administration of the *HHF Nutrition Tool*, in order to collect the second 24-HDR data.

4.2.4. Interviewing and checking questionnaires

Questionnaires were electronic and accessible online. During the interview, the data collected were automatically saved at regular intervals (every 60 seconds). On the left side of the screen the list of all sections of the questionnaire was provided; the interviewer could move from one section to another at will. At the end of the interview and to complete the inclusion of the data, the interviewer had to select "finalise" and an automatic data check was performed (for example, values out of range or questions that had not been completed). In the case of a tracking error and/or incomplete fields, the interviewer could then make the appropriate corrections and/or additions, otherwise the questionnaire could not be finalised. If there were no errors and all the required information was recorded, the questionnaire was finalised, stored and locked. Modifications or corrections, after the questionnaire was finalised, could only be made by the leader of the Information Technology Team and had to be mandated by the Project Manager.

4.3. Recruitment and training of the staff

4.3.1. Selection of the fieldwork staff

To select the fieldwork staff, the following general principles were considered:

- general appearance; since a non-provocative personality, calm and neutral appearance, good manners, friendliness, respect and interest shown towards the participants may affect participation and the survey's results. Cultural norms were also taken into account;
- willingness and availability to travel around the country;

Professional and broad competence of staff members was an important factor considered. Interviewers were public nurses and nutritionists with experience in previous large-scale data collection in the country and/or working experience in the HYDRIA survey.

4.3.2. Training

The training programme lasted for about 10 days, including an induction period and practice in the field. It was carried out by interviewers with nutritional background who have been involved in the development and operationalisation of procedures followed in the larger scale survey and aimed to:

- inform members of the staff about the standardised procedures;
- inform members of the staff about specific survey characteristics;
- allow for practicing through role playing exercises.

All fieldwork staff had experience in data collection through their involvement in the HYDRIA survey. However, before the EFSA-funded data collection was initiated, interviewers were evaluated for their comparability and repeatability and subsequently followed training sessions streamlined to reduce discrepancies identified.

In addition, fieldwork personnel involved in somatometric measurements received training about:

- rationale why these measurements are taken,
- practicals on measurement techniques and
- instructions about giving feedback to participants concerning their measurement results.

Feedback sessions were regularly carried out to:

- ensure standardisation;
- discuss problems that had arisen;
- exchange ideas on problem-solving.

Trainings were targeted to all survey staff, including:

- Information Technology (IT) experts;
- communication experts;
- the fieldwork team;
- the Project's Operational Management team.

Training and related material were available to all team members through a specific survey extranet site, so that all members had up-to date information available throughout the fieldwork period.

5. Quality assurance

Quality control forms part of quality assurance and included monitoring the accuracy and completeness of measurements and data, as well as actions taken to meet the observed deficiencies. Quality assurance was necessary throughout the course of the study, particularly in respect to the proper application of procedures during data collection. The training of all involved and the proper organisation of local examination centres were necessary conditions for the study to be of high quality. Equally important were the procedures followed to recruit individuals, as well as monitoring participation rates. In all instances where deviations from the standardised procedures were observed, the situation was assessed and necessary corrective actions were implemented.

Calibration of measuring equipment and data control

According to the protocols, calibration of the measurement equipment was carried out regularly. Specifically, calibration was performed before measurements were taken on a daily or weekly basis, or in accordance with the specifications of the device. All relevant points and actions taken were recorded in an online form the 'Equipment Testing Log', in order to be available for future reference.

Equipment and data transportation

The data were recorded using remote desktop technology and were directly stored in the central database. In case of a network or computer failure, the recording was done on paper forms and the situation with this particular case (i.e. paper-assisted data collection because of network failure and data entry when connection or access to a PC was restored) was recorded

in the appropriate logbook available online. When equipment was transferred to service, this was recorded to the online 'Equipment Transfer Monitoring Log'.

Data collection

Data collection with the administration of questionnaires and measurements was undertaken through electronic forms, which had in-built real-time quality controls informing the interviewer about suspicious entries. Furthermore, all problems encountered during the interview/data collection were recorded. For example: communication problems, issues related to understanding of questions, hearing or reading difficulties, replies received by proxies, as well as the presence of family members were recorded.

Ensuring the quality of the interviews included theoretical and practical training for all interviewers, adequate supervision and constructive feedback (rf. Section 4.3.2).

Furthermore, quality control during field data collection was performed by the fieldworkers and the coordinating centre. The fieldworkers conducted regular checks and record those in the 'Equipment Testing Log'. The coordinating centre performed checks on the field research that evaluated the quality of measurements, based on the following information:

- Distribution of the measurement's last digit;
- Mean and standard deviation of measurements;
- Reasons a measurement was not taken;
- Daily workload (number of measurements of weight and height per day and per person).

Administration of the food propensity questionnaire

In the piloting phase, the survey team identified difficulties in the completion of the FPQ, which mostly related to how well responders perceived the questions. Based on this experience and to enhance the quality of the collected data, interviewers explained to each participant the aim of the questionnaire and that some questions referred to major food groups (e.g. green leafy vegetables), whereas other referred to specific items (e.g. lettuce). In order to answer the questions, interviewers asked the participant to think of a usual week in the last 12 months and try to reply to the question: "How often did you eat/drink the following?" Although the baseline question remained the same throughout the questionnaire, interviewers were instructed to repeat it every three/four questions to assist the participant in recalling it. Furthermore, the interviewers explained to the participant the different frequency options through indicating that possible replies include "never", "sometimes per month" and "sometimes per week" and further add that if "sometimes per month" or "sometimes per week" is the reply, they may ask him/her to specify the number of times. Lastly, interviewers were requested to point out that attention was needed with respect to items consumed sporadically or on a seasonal basis and kindly asked the participant to inform them if the question refers to such an item, so as to assist him/her in estimating the usual yearly frequency of consumption.

In the likely event that the interviewer was asked to assist the participant in estimating his/her usual consumption, (s)he asked the respondent to: (a) think of a usual week during which the item was consumed, (b) indicate how often (s)he eat the food in each season, (c) report how long the season was for this particular item. In the end, the interviewer averaged the consumption frequency over the whole year. In addition, interviewers clarified that both fresh and processed products were grouped in the same category and the frequency reported had to refer to the consumption of both.

In the case of questionnaire entries that referred to aggregated food categories, examples of items included in the category were provided in the questionnaire and were used by the interviewers. These examples were selected to reflect local food consumption patterns. During

their training, interviewers reviewed and discussed the examples so that uniformity in providing clarifications was achieved and maintained. More detailed examples were provided when the questionnaire was administered to adolescents. In addition, since adolescents often have difficulties in reporting the consumption of food supplements, the assistance of parents was sought.

6. Data management

Management procedures covered areas such as the sharing of responsibilities among fieldwork teams, preparation and organisation of examination centres, scheduling of participants' appointments, the implementation of standardised procedures, and data transfer, documentation and storage.

The Operational Management Team, in collaboration with the Information Technology Team, was responsible for the provision of the necessary data management equipment to the fieldwork teams (computers, network access, etc.) and coordinated data management procedures.

6.1. Training, responsibilities and support for the fieldwork data collection teams

Each member of the fieldwork team was trained in data logging, with particular emphasis on ensuring accuracy, confidentiality and data security. Both the Operational Management Team and the Information Technology Team were in constant communication with the fieldworkers, overseeing data management procedures and providing support when needed. Additionally, the use of remote desktop technology allowed for central management and monitoring of connected users, with the system administrator being able to intervene in real time and solve problems that arose.

The members of the fieldwork teams were trained to:

- install the necessary equipment and regulate appropriate network connections at the examination centres;
- operate the equipment and software used in data collection;
- be familiar with the backup and data transfer procedures.

6.2. Data management during on-site field data collection

6.2.1. Recording and storing the collected data

Data were collected using remote desktop technology and were stored directly in the central database on the premises of the coordinating centre. Simultaneously, backups were run at regular intervals. If a network connection was not available, data were initially recorded on paper and when the connection became available, data were recorded electronically.

6.2.2. Detecting data errors

In order to ensure complete, error-free data, with no losses or discrepancies in files stored, regular testing procedures were applied. These procedures included visual inspection while the questionnaires and electronic forms were filled out, logical checks automatically performed by the software and extensive testing of recorded data by the coordinating centre.

Logical checks ensured the storage of acceptable values only and monitored erroneous data entries (e.g. undetermined values of individual fields or contradictions between various field values) or strange values (i.e. for values which are acceptable, however are rare and need verification).

6.2.3. Correction and documentation of data

When an error was detected, its correction and related documentation were generated to ensure transparency and consistency of procedures used.

Any modification to the raw data was recorded. The initial version was stored in the backup copy and the new corrected version was created, always with accompanying documentation explaining what, when, how and why the change was necessary. This approach allows monitoring of "historical" data.

6.2.4. Security and confidentiality of data

The computers and servers used in the study were password protected, and the actions of all users were logged in actions and event files (event logging). At the same time, security policies were in place, so that only authorised individuals had access to the data. Furthermore, data encryption and the use of secure connections were provided, especially for portable computing devices, so that the survey data were safe even in the case of loss or theft of equipment. The use of remote desktop technology served this overall purpose, as data were not stored on the portable computing devices, but directly in the central database at the coordinating centre.

At the network level, firewalls were used to filter the data traffic and prevent network attacks. This, in conjunction with antivirus programs, meant that the network remains free from malicious programs.

6.2.5. Backup of data

By using remote desktop technology data collected were stored directly on a central server. Backups of all collected data repositories and databases were created on a daily basis. These backup copies were stored on a collection of disks capable of at least RAID-5 to prevent data loss in the event of equipment malfunction, or software errors.

7. Dissemination and publicity

Actions related to the dissemination and publicity of the EFSA-funded data collection were not foreseen.

8. Special issues/challenges

The EFSA-funded data collection was initiated when the HYDRIA survey was half-way through. The pilots of the Greek health examination and nutrition survey provided the necessary background information in relation to the anticipated response rate, the process of recruiting participants and the procedures for data collection, management and storage. Furthermore, modifications deemed necessary at the beginning of the larger scale data collection had already been introduced prior to the EFSA-funded survey among adolescents and adults up to 74 years old. When the EFSA project started, the operational procedures were mature and data collection was running smoothly and deviations from parts of the HYDRIA survey protocol, which were relevant to the EFSA-funded data collection were not needed.

The expertise gained through the aforementioned actions was channelled in the larger scale project and related data collections. In particular, the EHES Pilot JA provided the set of non-dietary questions and the protocols for undertaking somatometric measurements, including the selection, maintenance and calibration of equipment; the assessment procedure; the data record forms; and the equipment logs. In the first year of the presently reported assignment, the requirements of these assessments as described in the EFSA Guidance Document and the PILOT-PANEU final report were reviewed. The non-dietary questionnaire and the protocol for assessing height and body weight were in accordance to the requirements of the above mentioned documents and no changes in the already applied questionnaire and protocol were deemed necessary.

It should be pointed out that the EFSA Guidance Document refers to the collection of information on the participant's income. Since, however, the validity of the self-reported income has been vastly questioned, the research team decided to collect detailed data on the participants' educational attainment and occupation/profession as valid indications of the person's positioning in the social hierarchy.

The participation of the World Health Organisation (WHO) Collaborating Centre for Food and Nutrition Policies of the University of Athens Medical School in the PILOT-PANEU project provided input for the selection of the dietary assessment tools. The FPQ used in the larger scale national study was developed on the basis of the PILOT-PANEU recommendations, as described in the project's final report. It conforms with the PILOT-PANEU recommendations to provide additional fields that allow recording of seasonal variation in intakes and the questionnaire items were re-ordered so as to include questions on specific items of a food group firstly and on broader sub-groups of the same group lastly so as to facilitate data collection. Since the FPQ was developed and amended in complete accordance to the final recommendations of the PILOT-PANEU project, no additional changes were applied.

In addition, in a PILOT-PANEU related assignment, members of the University of Athens team collaborated with the HHF team, in order to accommodate the HHF Nutrition Tool so as to meet the requirements of EFSA's FoodEx2 classification system (EFSA, 2015). Given the fact that the tool was designed on the basis of the LanguaL™ system, no major modifications were deemed necessary in the process of accommodating it to meet the requirements of the FoodEx2 system. The actions needed to accommodate the HHF Nutrition Tool to the requirements of EFSA's FoodEx2 classification system, particularly included the introduction of minor modifications in the food classification scheme; the addition of one facet related to the shape of food packaging; and, the split in two of one facet on the presence of aromatic substances and characteristic ingredients. Furthermore, the list of descriptors under some facets was enriched with the "Unable to define" options and, on the basis of decisions taken in the context of the PILOT-PANEU project, the descriptors under the facet on 'place of food preparation/acquisition' were amended.

The tool was subsequently applied in the context of the PILOT-PANEU project and data among 257 adolescents and adults up to 74 years of age were collected. The accommodation of the pre-existing HHF Nutrition Tool version was supported by HHF resources. Upon completion of the testing, the HHF team reviewed the frequency by which facets and related descriptors were reported with the aim to identify facets to which participants were unable to provide any information and review the necessity of their inclusion in the full-size data collection. The research team concluded on a list of descriptors that could potentially be deleted as they were not selected in any occasion and were expected of being reported only in extremely rare occasions. The finally selected facets and descriptors were further reviewed in light of the results of the analysis of the EFSA-funded ring-trial of the six dietary assessment tools, which the HHF coordinated (Gavrieli et al. 2014).

Since the protocol of the larger scale national HYDRIA study was initially developed to cover data collection among adults and subsequently expanded to cover individuals 0-18 years old, the research team worked to identify the modifications needed in order to expand data collection to adolescents. A necessity for the following modifications was recognised:

- Changes in the non-dietary questionnaire (part on socio-demographic characteristics), so as to collect data on the adolescents' parents/guardians (both the father and the mother)
- Inclusion of the short version of the International Physical Activity Questionnaire in order to collect data on adolescents' usual physical activity. The Greek version has been validated in a sample of very young adults (University students) (Papathanasiou et al, 2010).

Lastly, based on recommendations from the PILOT-PANEU project, adolescents will be allowed to seek their parents' assistance in describing the intake of dietary supplements.

Given the earlier testing of both the FPQ and the HHF Nutrition Tool (24-HDR method) in all the age groups included in the present assignment and the previous introduction of amendments resulting from this earlier testing, no modifications were deemed necessary.

References

- Ambrus Á, Horváth Zs, Farkas Zs, Cseh J, Petrova S, Dimitrov P, Duleva V, Rangelova L, Chikova-Iscener E, Ovaskainen M-L, Pakkala H, Heinemeyer G, Lindtner O, Schweter A, Naska A, Sekula W, Guimar S, Lopes C and Torres D, 2013. Pilot study in the view of a Pan-European dietary survey - adolescents, adults and elderly. EFSA supporting publications 2013:EN-508, 104 pp and Annexes. Available online: <http://www.efsa.europa.eu/en/supporting/pub/508e.htm>
- Conway JM, Ingwersen LA, Vinyard BT, Moshfegh AJ. Effectiveness of the US Department of Agriculture 5-step multiple-pass method in assessing food intake in obese and non obese women. *Am J Clin Nutr* 2003;77:1171–1178
- European Food Safety Authority (EFSA), 2009. General principles for the collection of national food consumption data in the view of a pan-European dietary survey. *EFSA Journal* 2009; 7(12):1435. [51 pp.]. doi:10.2903/j.efsa.2009.1435.
- EFSA, 2014. Guidance on the EU Menu methodology. *EFSA Journal* 2014;12(12):3944, 77pp. doi:10.29003/j.efsa.2014.3944
- EFSA, 2015. The food classification and description system FoodEx2 (revision 2). EFSA supporting publication 2015:EN-804. 90 pp.
- Gavrieli A, Naska A, Berry R, Roe M, Harvey L, Finglas P, Glibetic M, Gurinovic M and Trichopoulou A, (2014). Dietary monitoring tools for risk assessment. EFSA Supporting Publication:EN-607. [287 pp.]. Available online: www.efsa.europa.eu/publications
- International Agency for Research on Cancer (IARC), 2013. Food Consumption Data Collection Methodology for the EU Menu Survey (EMP-PANEU) Final Report (Phase 3). EFSA supporting publication 2013:EN-485, 85 pp. Available online: http://www.efsa.europa.eu/sites/default/files/scientific_output/files/main_documents/485e.pdf
- Martimianaki G., Naska A., Papatesta M.E., Peppas E., Orfanos P., Trichopoulou A., 2018. Methods and introductory results of the Greek national health and nutrition survey – HYDRIA. *Epidemiology Biostatistics and Public Health* - 2018, Volume 15, Number 2.
- Naska A., Valanou E., Peppas E., Katsoulis M., Barbouni A., Trichopoulou A., 2016. Evaluation of a digital food photography atlas used as portion size measurement aid in dietary surveys in Greece. *Public Health Nutrition* 2016; 19 (13): 2369–76. doi: 10.1017/S1368980016000227
- Ocké M., de Boer E., Brants H., van der Laan J., Niekerk M., van Rossum C., Temme L., Freisling H., Nicolas G., Casagrande C., Slimani N., Trolle E., Ege M., Christensen T., Vandevijvere S., Bellemans M., De Maeyer M., Defourny S., Rupich J., Dofkova M., Rehurkova I., Jakubikova M., Blahova J., Piskackova Z., Maly M.; PANCAKE – Pilot study for the Assessment of Nutrient intake and food Consumption Among Kids in Europe. Supporting Publications 2012:EN-339 [120 pp.]. Available online: www.efsa.europa.eu/publications.
- Papathanasiou G, Georgoudis G, Georgakopoulos D, Katsouras C, Kalfakakou V, Evangelou A. Criterion-related validity of the short International Physical Activity Questionnaire against exercise capacity in young adults. *Eur J Cardiovasc Prev Rehabil*. 2010; 17(4): 380-386.
- Wareham NJ, Jakes RW, Rennie KL, Schuit J, Mitchell J, Hennings S, Day NE, 2003. Validity and repeatability of a simple index derived from the short physical activity questionnaire used in the European Prospective Investigation into Cancer and Nutrition (EPIC) study. *Public Health Nutr*. 2003; 6(4): 407-413.

Abbreviations

CAPI	Computer Assisted Personal Interview
EFSA	European Food Safety Authority
EGFCD	Expert Group on Food Consumption Data
EHES	European Health Examination Survey
EL.STAT	Hellenic Statistical Authority
FPQ	Food Propensity Questionnaire
HDPa	Hellenic Data Protection Authority
HES	Health Examination Survey
HHF	Hellenic Health Foundation
HYDRIA	Health and nutrition of the population in Greece – the national survey
IARC	International Agency for Research on Cancer
KAPI	Open care community centres for elderly
NKUA	National and Kapodistrian University of Athens
NSRF	National Strategic Reference Network
PANCAKE project	"Pilot study for the Assessment of Nutrient intake and Food Consumption Among Kids in Europe"
PANEU project	Pilot study in the view of a Pan-European dietary survey – adolescents, adults and elderly
PSU	Primary Sampling Units
24-HDR	24-hour dietary recall
WHO	World Health Organisation

Appendix A – The Food Propensity Questionnaire (adolescents and adults)

Instructions to the interviewer:

Kindly ask the participant to think of a usual week in the last 12 months and circle the number corresponding to the participant's reply.

For items consumed seasonally (e.g. fruit), advise the participant:

Please think of a usual week in the season the food item is commonly consumed. How often did you eat the foods in each season? How long is the season for this item? Please try to average your consumption frequency over the whole year.

Example: If from June to August, you eat watermelon [the choice of the item can be country-specific] 2-3 days per week, please indicate 1 day per week.

How often did you eat/drink the following items the last 12 months?

	Never	Less than 1 day per month	1-3 days per month	1 day per week	2-3 days per week	4-5 days per week	6-7 days per week (nearly every day)	Not answered
Grains and grain-based products								
1. Bread – wholemeal (incl. baguettes and buns)	1	2	3	4	5	6	7	8
2. Bread –non wholemeal (incl. baguettes and buns)	1	2	3	4	5	6	7	8
3. Breakfast cereals (e.g. corn flakes; puffed, sugared cereals; muesli bar)	1	2	3	4	5	6	7	8
4. Pasta, all types	1	2	3	4	5	6	7	8
5. Rice	1	2	3	4	5	6	7	8
6. Cakes and biscuits (e. g. torte, muffin, fruit pie)	1	2	3	4	5	6	7	8
7. Salty snacks (cheese pies, spinach pies and other dough products)	1	2	3	4	5	6	7	8
8. Other salty snacks (e.g. crackers, pop corn)	1	2	3	4	5	6	7	8
9. Sandwiches (ready-to-eat)	1	2	3	4	5	6	7	8
Vegetable and vegetable products (consumed raw, processed or as recipe ingredients)								
10. Vegetables, canned	1	2	3	4	5	6	7	8
11.1 Rucola, rocket	1	2	3	4	5	6	7	8
Period of the year								
11.2 Rucola, rocket	1	2	3	4	5	6	7	8
Period of the year								

	Never	Less than 1 day per month	1-3 days per month	1 day per week	2-3 days per week	4-5 days per week	6-7 days per week (nearly every day)	Not answered
12.1. Lettuce, iceberg salad	1	2	3	4	5	6	7	8
Period of the year								
12.3. Lettuce, iceberg salad	1	2	3	4	5	6	7	8
Period of the year								
13.1 Wild green leafy vegetables	1	2	3	4	5	6	7	8
Period of the year								
13.2. Wild green leafy vegetables	1	2	3	4	5	6	7	8
Period of the year								
14.1 Ready-to-eat salads	1	2	3	4	5	6	7	8
Period of the year								
14.2 Ready-to-eat salads	1	2	3	4	5	6	7	8
Period of the year								
15.1 Other leafy vegetables (e.g. spinach, chicory, amaranthus)	1	2	3	4	5	6	7	8
Period of the year								
15.2 Other leafy vegetables (e.g. spinach, chicory, amaranthus)	1	2	3	4	5	6	7	8
Period of the year								
16.1 Tomatoes	1	2	3	4	5	6	7	8
Period of the year								
16.2 Tomatoes	1	2	3	4	5	6	7	8
Period of the year								
17.1 Other fruiting vegetables (e.g. peppers, cucumbers, aubergines, paprika) (incl. processed)	1	2	3	4	5	6	7	8
Period of the year								
17.2 Other fruiting vegetables (e.g. peppers, cucumbers, aubergines, paprika) (incl. processed)	1	2	3	4	5	6	7	8
Period of the year								
18.1 Carrots	1	2	3	4	5	6	7	8
Period of the year								
18.2 Carrots	1	2	3	4	5	6	7	8
Period of the year								
19.1 Beetroots and other root vegetables	1	2	3	4	5	6	7	8
Period of the year								
19.2 Beetroots and other root vegetables	1	2	3	4	5	6	7	8
Period of the year								

	Never	Less than 1 day per month	1-3 days per month	1 day per week	2-3 days per week	4-5 days per week	6-7 days per week (nearly every day)	Not answered
20.1 Brassica vegetables (e.g. cabbage, cauliflower, broccoli, Brussels sprouts, red cabbage, savoy cabbage)	1	2	3	4	5	6	7	8
Period of the year								
20.2 Brassica vegetables (e.g. cabbage, cauliflower, broccoli, Brussels sprouts, red cabbage, savoy cabbage)	1	2	3	4	5	6	7	8
Period of the year								
21.1 Onions	1	2	3	4	5	6	7	8
Period of the year								
21.2 Onions	1	2	3	4	5	6	7	8
Period of the year								
22.1 Other bulb vegetables (e.g. garlic, fresh and dried)	1	2	3	4	5	6	7	8
Period of the year								
22.2 Other bulb vegetables (e.g. garlic, fresh and dried)	1	2	3	4	5	6	7	8
Period of the year								
23.1 Stem vegetables (e.g. celery, asparagus, artichoke, fennel, sprouts)	1	2	3	4	5	6	7	8
Period of the year								
23.2 Stem vegetables (e.g. celery, asparagus, artichoke, fennel, sprouts)	1	2	3	4	5	6	7	8
Period of the year								
24. Mushrooms	1	2	3	4	5	6	7	8
25. Olives (incl. olive paste)	1	2	3	4	5	6	7	8
Starchy roots or tubers and products								
26. French fries	1	2	3	4	5	6	7	8
27. Other potatoes (incl. sweet potatoes, boiled or baked)	1	2	3	4	5	6	7	8
Legumes, nuts, oilseeds and spices								
28. Pulses (e.g. beans, peas, lentils, soya and soya products)	1	2	3	4	5	6	7	8
29. Soya and soya products	1	2	3	4	5	6	7	8
30. Nuts and seeds (e.g. sunflower seeds, sesame seeds, pumpkin seeds, peanut seed, walnut, cashew, almonds)	1	2	3	4	5	6	7	8
31. Sesame-based products (sesame bar, halva)	1	2	3	4	5	6	7	8

	Never	Less than 1 day per month	1-3 days per month	1 day per week	2-3 days per week	4-5 days per week	6-7 days per week (nearly every day)	Not answered
Fruit and fruit products (consumed raw, processed or as recipe ingredients)								
32.1 Kiwi, oranges, mandarines, clementines and other citrus fruit	1	2	3	4	5	6	7	8
Period of the year								
32.2 Kiwi, oranges, mandarines, clementines and other citrus fruit	1	2	3	4	5	6	7	8
Period of the year								
33. Canned fruit	1	2	3	4	5	6	7	8
34. Dried fruits (e.g. raisins, prunes, figs, dates)	1	2	3	4	5	6	7	8
35.1 Other fruit (excluding juices and other soft drinks)	1	2	3	4	5	6	7	8
Period of the year								
35.2 Other fruit (excluding juices and other soft drinks)	1	2	3	4	5	6	7	8
Period of the year								
36. Jam, marmalade and other fruit spreads	1	2	3	4	5	6	7	8
Meat and meat products								
37. Beef and veal	1	2	3	4	5	6	7	8
38. Souvlaki	1	2	3	4	5	6	7	8
39. Other red meat (pork, lamb and goat)	1	2	3	4	5	6	7	8
40. Poultry meat (incl. turkey meat)	1	2	3	4	5	6	7	8
41. Ham, smoked								
42. Other meat products and sausages (smoked)	1	2	3	4	5	6	7	8
43. Meat products and sausages, boiled	1	2	3	4	5	6	7	8
44. Other meat products, processed meat (e.g. canned luncheon meat)	1	2	3	4	5	6	7	8
45. Game meat	1	2	3	4	5	6	7	8
46. Liver (of beef, veal, pork, lamb, goat, duck)	1	2	3	4	5	6	7	8
47. Liver products								
48. Kidney	1	2	3	4	5	6	7	8
49. Other offal (tongue, tripe, gizzard, guts, brain, intestines)	1	2	3	4	5	6	7	8
Fish, seafood								
50. Fatty fish of marine origin, fresh (sardines, anchovies, herring, mackerel, salmon, eel, tuna)	1	2	3	4	5	6	7	8
51. Other marine fish, fresh (e.g. cod)	1	2	3	4	5	6	7	8

	Never	Less than 1 day per month	1-3 days per month	1 day per week	2-3 days per week	4-5 days per week	6-7 days per week (nearly every day)	Not answered
52. Freshwater fish, fresh (e.g. trout, perch, carp, bighead carp catfish)	1	2	3	4	5	6	7	8
53. Smoked fish (e.g. smoked salmon)	1	2	3	4	5	6	7	8
54. Other processed fish and seafood (salted, canned)								
55. Cephalopods (incl. octopus, squids, cuttlefish)	1	2	3	4	5	6	7	8
56. Prawns and shrimps	1	2	3	4	5	6	7	8
57. Mussels, clams, oysters, bivalve molluscs, scallops	1	2	3	4	5	6	7	8
Milk and dairy products								
58. Milk and milk products (cheese, yoghurt and others) low in fat	1	2	3	4	5	6	7	8
59. Milk, full fat	1	2	3	4	5	6	7	8
60. Cheese, full fat	1	2	3	4	5	6	7	8
61. Yoghurt, full fat	1	2	3	4	5	6	7	8
62. Ices and milk based desserts (e.g. ice cream, sorbet, milk shake, frozen yoghurt)	1	2	3	4	5	6	7	8
63. Other milk products, full fat (e.g. fresh cream, kefir)	1	2	3	4	5	6	7	8
Eggs and egg products								
64. Eggs (boiled, omelette, fried, recipe ingredients)	1	2	3	4	5	6	7	8
Sugar and confectionary								
65. Sugar/ molasses, fructose and other syrups	1	2	3	4	5	6	7	8
66. Artificial intensive sweeteners	1	2	3	4	5	6	7	8
67. Honey	1	2	3	4	5	6	7	8
68. Other sweets (e.g. chocolate, candies)	1	2	3	4	5	6	7	8
Animal and vegetable fats and oils								
69. Butter								
70. Other animal fat (e.g. lard, duck fat, goose fat)	1	2	3	4	5	6	7	8
71. Margarine with sterol/stanols with a health claim to reduce blood cholesterol	1	2	3	4	5	6	7	8
72. Other margarines and other vegetable fat (e.g. cooking fat)	1	2	3	4	5	6	7	8
73. Olive oil	1	2	3	4	5	6	7	8
74. Vegetable oils (seed oils, soybean oil)	1	2	3	4	5	6	7	8
Fruit and vegetable juices								
75. Fruit juice (freshly squeezed and	1	2	3	4	5	6	7	8

	Never	Less than 1 day per month	1-3 days per month	1 day per week	2-3 days per week	4-5 days per week	6-7 days per week (nearly every day)	Not answered
products of 100% juice)								
Water and beverages								
76. Tap water	1	2	3	4	5	6	7	8
77. Mineral and/or bottled water	1	2	3	4	5	6	7	8
78. Juices and soft drinks with sugar	1	2	3	4	5	6	7	8
79. Soft drinks LIGHT (e.g. drinks with artificial sweetener)	1	2	3	4	5	6	7	8
80. Energy drinks	1	2	3	4	5	6	7	8
Coffee and tea								
81. Coffee	1	2	3	4	5	6	7	8
82. Tea (green, black and white)	1	2	3	4	5	6	7	8
83. Herbal teas (chamomile, sage mountain tea, roibos)	1	2	3	4	5	6	7	8
Alcoholic beverages								
84. Wine (red, rosé, white)	1	2	3	4	5	6	7	8
85. Beer	1	2	3	4	5	6	7	8
86. Spirits (e.g. whiskey, vodka)	1	2	3	4	5	6	7	8
87. Other alcoholic drinks (e.g. cider, alcopops)	1	2	3	4	5	6	7	8
Miscellaneous								
88. Added table salt	1	2	3	4	5	6	7	8

How often did you take any of the vitamins, minerals or other dietary supplements listed below the last 12 months?

	Never	Less than 1 day per month	1-3 days per month	1 day per week	2-3 days per week	4-5 days per week	6-7 days per week (nearly every day)	Not answered
1. Vitamin C supplement	1	2	3	4	5	6	7	8
2. Vitamin D supplement	1	2	3	4	5	6	7	8
3. Folate supplement	1	2	3	4	5	6	7	8
4. Multivitamin supplement without minerals	1	2	3	4	5	6	7	8
5. Multivitamin supplement with minerals	1	2	3	4	5	6	7	8
6. Calcium supplement	1	2	3	4	5	6	7	8
7. Iron supplement	1	2	3	4	5	6	7	8
8. Magnesium supplement	1	2	3	4	5	6	7	8
9. Fatty acid supplement (e.g. fish oil, primrose oil)	1	2	3	4	5	6	7	8
10. Herb or plant supplements	1	2	3	4	5	6	7	8
11. Probiotic or prebiotic preparations	1	2	3	4	5	6	7	8
12. Algae preparations	1	2	3	4	5	6	7	8
13. Supplements for body building (carnitin, creatin, amino acids, protein, etc)	1	2	3	4	5	6	7	8

14. Supplements for weight control and slimming	1	2	3	4	5	6	7	8
15. Other								
Please indicate:	1	2	3	4	5	6	7	8
.....								
.....	1	2	3	4	5	6	7	8